

Providing Pumping Solutions for Industry Since 1983

Conversion Table			
Pressure in PSI to Feet of Head			
PSI	Ft/Head	PSI	Ft/Head
1	2.31	19	43.9
2	4.62	20	46.2
3	6.93	25	57.7
4	9.24	30	69.3
5	11.6	35	80.8
6	13.9	40	92.4
7	16.2	45	103.9
8	18.5	50	115.5
9	20.8	55	127.0
10	23.1	60	138.6
11	25.4	65	150.1
12	27.7	70	161.7
13	30.0	75	173.2
14	32.3	80	184.8
15	34.6	85	196.3
16	37.0	90	207.9
17	39.3	95	219.4
18	41.6	100	230.9

Above based on Water at 70°F

### Useful Formulas

$$\text{Feet of Head} = \text{PSI} \times \frac{2.31}{\text{SG}} \quad \text{Head Pressure} = \text{Feet} \times .433 \times \text{SG}$$

$$\text{Break Horsepower (BHP)} = \frac{\text{GPM} \times \text{Head} \times \text{SG}}{3960 \times \text{Efficiency} \%}$$

$$\text{NPSHa} = (14.7 + \text{Gauge} - \text{VP}) \times \frac{2.31}{\text{SG}} \pm \text{Static Ht} - \text{Friction Loss}$$

Pressure/Head  
 PSI = Bar X 14.5  
 PSI = Kg/cm<sup>2</sup> X 14.22  
 Feet = m X 3.281  
 Meter = Feet X 0.3048

Flow  
 GPM = Ips X 15.85  
 GPM = lpm X 0.2642  
 GPM = m<sup>3</sup>/hr X 4.403  
 GPM = GPH X 60  
 M<sup>3</sup>/hr = GPM X 0.2271

Temperature  
 °C = 0.556 X (°F-32)  
 °F = (1.8 X °C) + 32

Power/Torque  
 kW = HP X 0.746  
 HP = kW = 1.340  
 Ft/Lbs = (BHP X 5250)/rpm

Length/Weight  
 Ft = m X 3.281  
 In = mm X 0.0397  
 In = cm X 0.3937  
 Lb = kg X 2.205

### “Terminology”

**Gallon Per Minute (GPM)** Gallons Per Hour (GPH) Gallons Per Day (GPD) Meters cubed per hour (M<sup>3</sup>/hr)

**Total Dynamic Head (TDH):** The sum of discharge head plus suction lift or minus suction head

**Specific Gravity (SG):** Is the Density of a liquid as compared to water at a given temperature. Water is used as the standard at 14.7 psia at 60°F. Its specific gravity is 1.0 at this standard temperature

**NPSHa:** Net positive suction head available is the term for providing sufficient pressure on the pump suction to prevent boiling

**NPSHr:** Net positive suction head required by a pump. All pumps have a suction head requirement. The NPSHa needs to be greater than the NPSHr to prevent cavitation.

**Viscosity:** The measure of a fluids resistance to flow under an applied force at a given temperature. Viscosity can be thought as the “Thickness” of a liquid.

**Cavitation:** Occurs when vapor bubbles form in the eye of the impeller. As the flow moves outward in the impeller waterways, the pressure increases above the vapor pressure and the vapor bubbles collapse causing the pump to sound as if gravel is running through it

**Vapor Pressure (VP):** The amount of pressure required to prevent a liquid from boiling. As the temperature increases the vapor pressure increases

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